



**BBV**

# Installation Guide



## TX1500 Models covered

<b>Matrix</b>	Page 2 (Software Version 1.04) Expandable 16 - 96 Camera, 8 Monitor Video Matrix & Control System
<b>Keyboard</b>	Page 27 Tx1500 keyboard Installation
<b>Interface (BBUS)</b>	Page 28 Interface allowing RS232/422/485 control from third party equipment
<b>Interface (BBUS)</b>	Page 29 Interface to connect Tx1500 keyboard remotely via fibre, RF link etc

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## UNPACKING

Inspect the packaging for signs of damage. If damage has occurred, advise the carriers and/or the suppliers immediately. Unpack the units carefully and check that all the items are present and correct.

## SAFETY PRECAUTIONS

All normal safety precautions as laid down by British Standards and the Health and Safety at Work Act (or the relevant National safety legislation if installing in a country outside the U.K.) should be observed, and servicing should be referred to qualified service personnel.

## SYSTEM COMPONENTS

Each complete system will comprise of at least the following:

- 1 x TX1500 video matrix enclosed in a 19" sub rack.
- 1 x TX1500/KBD system keyboard or Tcommand Touch Screen keyboard
- 2 \* RJ45 straight patch cables
- 2 \* RJ45 breakout boxes with self adhesive mounting pad
- 2 \* 9Vdc 500mA power supply (1 for the matrix and 1 for the keyboard)



Fig 1. Picture showing a Tx1500/16/8 matrix with fitted optional 16 alarm inputs.



Keyboard

Fig 2. Standard Tx1500/KBD System

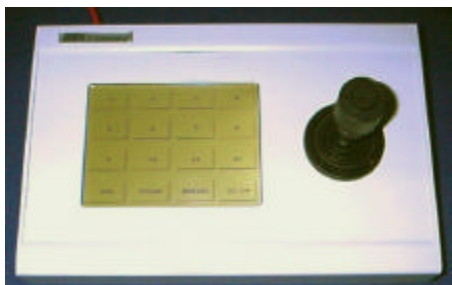


Fig 3. Optional TCommand DX Touch Screen Keyboard

## DESCRIPTION

The Tx1500 is a video matrix and telemetry control system offering control of up to 96 cameras from 4 control positions. 8 monitor outputs are provided as standard. Monitor 1,2,3 & 4 are control monitors with on screen display and monitors 5,6,7 & 8 are spot monitors.

***Up-the-coax telemetry receivers can be controlled when viewed on monitors 1,2,3 & 4. RS485 linked receivers and domes can be controlled when viewed on any monitor.***

Control of the full range of BBV coaxial telemetry receivers and dome interfaces is provided as standard. BBV's new generation of RS485 controlled telemetry receivers, RX457 and RX557, can be driven by the built in RS485 telemetry port. Protocol converters are available to allow RS485 control of selected domes.

The RS485 can be either daisy chained from receiver to receiver or to simplify wiring an 8 port RS485 StarCard can be used allowing a star-wiring configuration. When wired as a star, a fault on a single leg allows the remaining receivers to operate.

## TX1500 COMPONENTS

A Tx1500 system comprises of several different types of card enclosed in a subrack or mounted remotely. The subrack can be fitted to a 19" rack via supplied ears that can be mounted on the front or rear face of the subrack. By fitting the ears on the back of the subrack, it can also be wall mounted.

The Monitor output card communicates with the other cards via a 4 wire multi-drop RS422 protocol named B-BUS. B-BUS devices can be linked using Cat5e patch cables when mounted local to the Tx1500 and via a good quality twin twisted pair screened data cable when mounted remotely.

A complete Tx1500 system will comprise of at least the video matrix to allow switching of video onto 8 monitor outputs. BBV up-the-coax telemetry receivers can be controlled directly using a single coax connection to each camera position. RS485 control of the BBV RX457 (AC) receiver and RX557 (DC) receiver is also provided.

An 8 output RS485 starcard is available to simplify RS485 installations and an optional protocol converter allows control of an expanding range of other manufacturers dome cameras.

Site alarms and contacts are handled with the alarm card that provides 16 inputs. Each input must be a volts free, normally closed contact that opens on alarm activation. Up to 6 alarm cards can be linked into the Tx1500 system either local or remote offering 96 alarm inputs. An alarm disable input is provided on each alarm card. Providing a closed contact on the disable input will prevent the alarms on this card from being processed.

Off site control, via video/data transmission equipment, and local control from PC and other equipment is made possible by using the B-BUS interface. As far as the Tx1500 is concerned the interface is another keyboard. The interface can be driven using either the Tx1000 or Tx1500 RS232 control protocols.



## B-BUS CONTROL BUS

The Tx1500 'talks' with all keyboards, alarm card and control interfaces via a polled 4 wire multidrop RS422 control bus named B-BUS.

All the units are equipped with standard RJ45 connectors allowing cat 5 patch cables to be used to connect over short distances. On the larger sites RJ45 break out boxes are used to link between cat 5 cables and good quality screen twin twisted pair data cable via screw terminals. The breakout box is as follows:

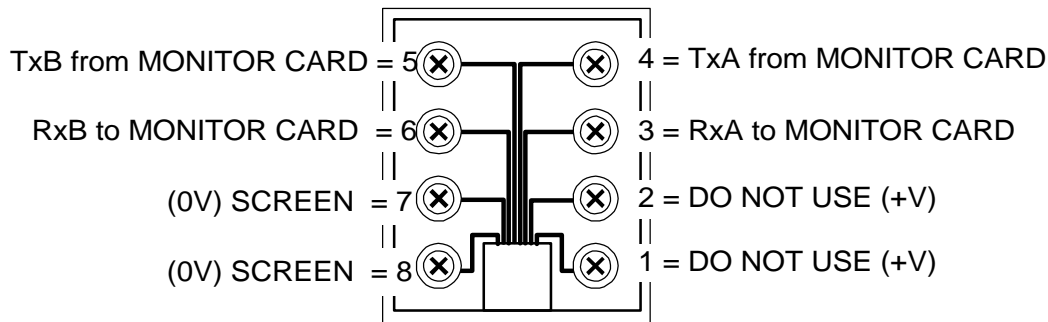


Fig 5. B-BUS - RJ45 breakout box connector, MONITOR CARD end of keyboard cable.

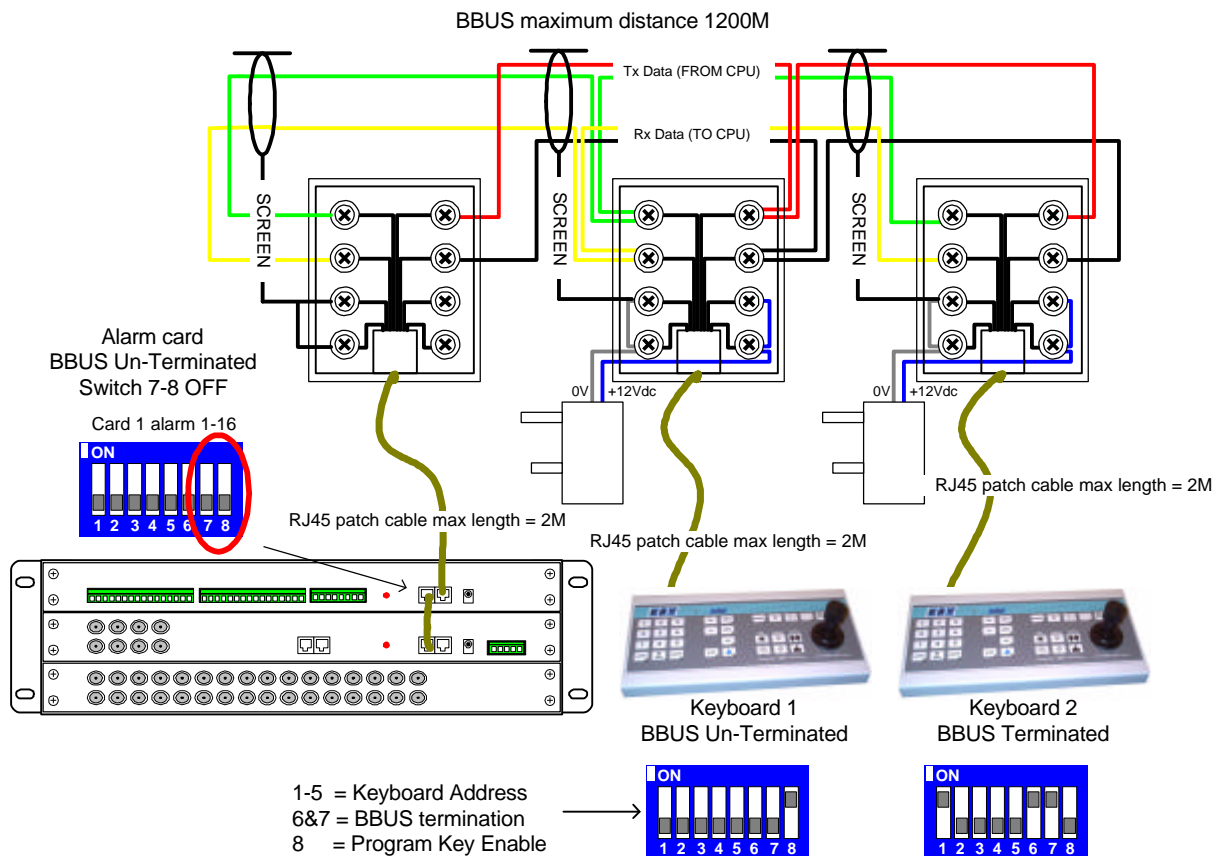


Fig 6. Keyboard BBUS wiring

Keyboard 1 is not at the end of line so BBUS termination is OFF (switch 6,7 OFF). It is addressed as 1 and the PROGRAM key is enabled (switch 8 ON), allowing menu access and preset programming.

Keyboard 2 is at the end of the line so BBUS termination is ON (switch 6,7 ON). It is addressed as 2 and the PROGRAM key is disabled (switch 8 OFF), preventing menu access and preset programming.

## RS485 TELEMETRY OUT

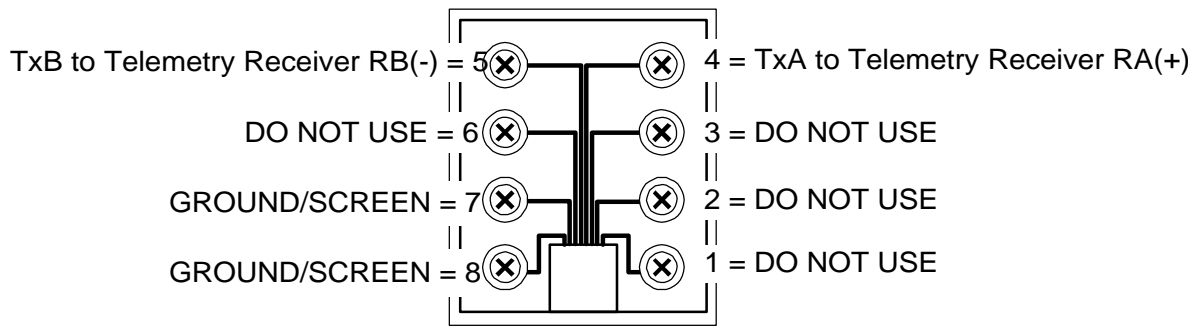


Fig 7. TELEMETRY – RJ45 breakout box connector.

This port provides telemetry control via BBV RS485. Again a cat 5e RJ45 patch cable and breakout box is used to connect the telemetry receivers via single twisted pair cable. It is possible to either wire the network in a daisy chained or star configuration using an optional RS485 star card.

RS485 wiring configurations are shown below and on the following page.

## RS485 TELEMETRY WIRING CONFIGURATIONS

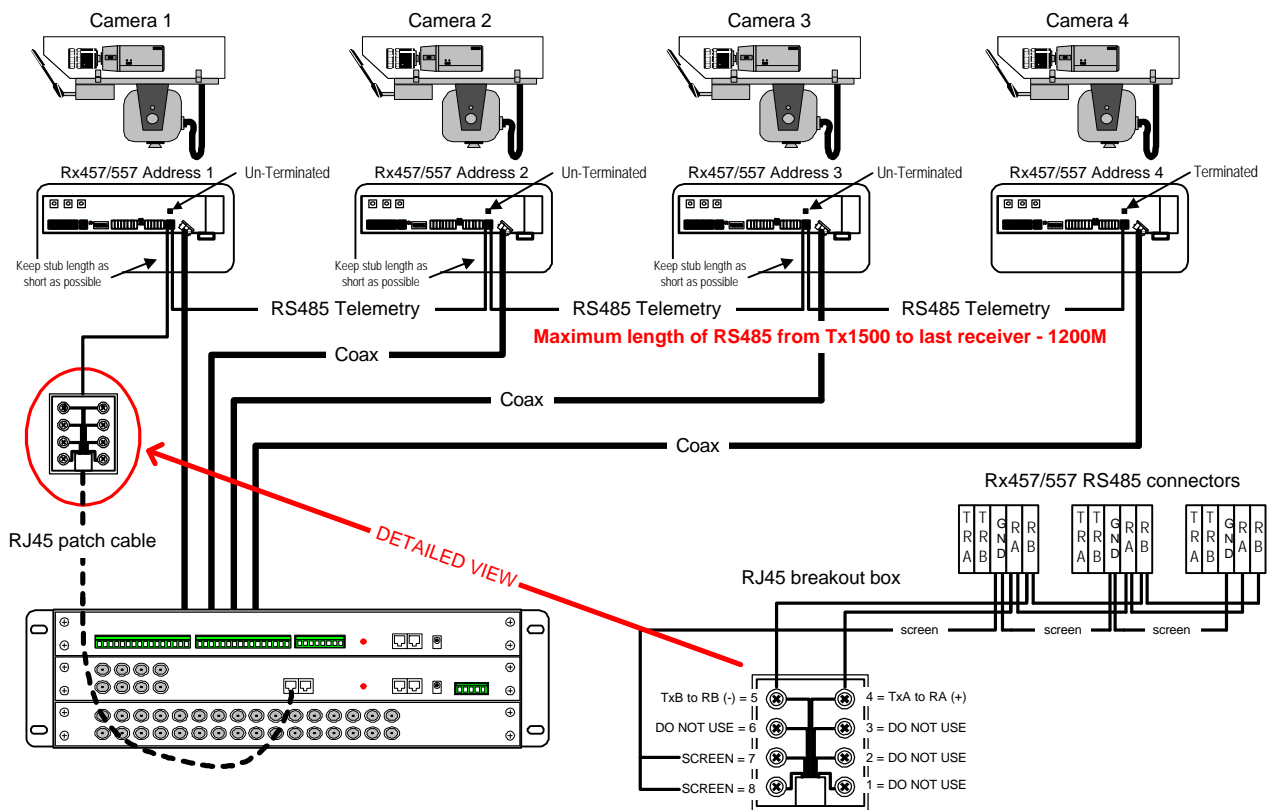


Fig 8. Daisy Chained RS485 Telemetry Wiring

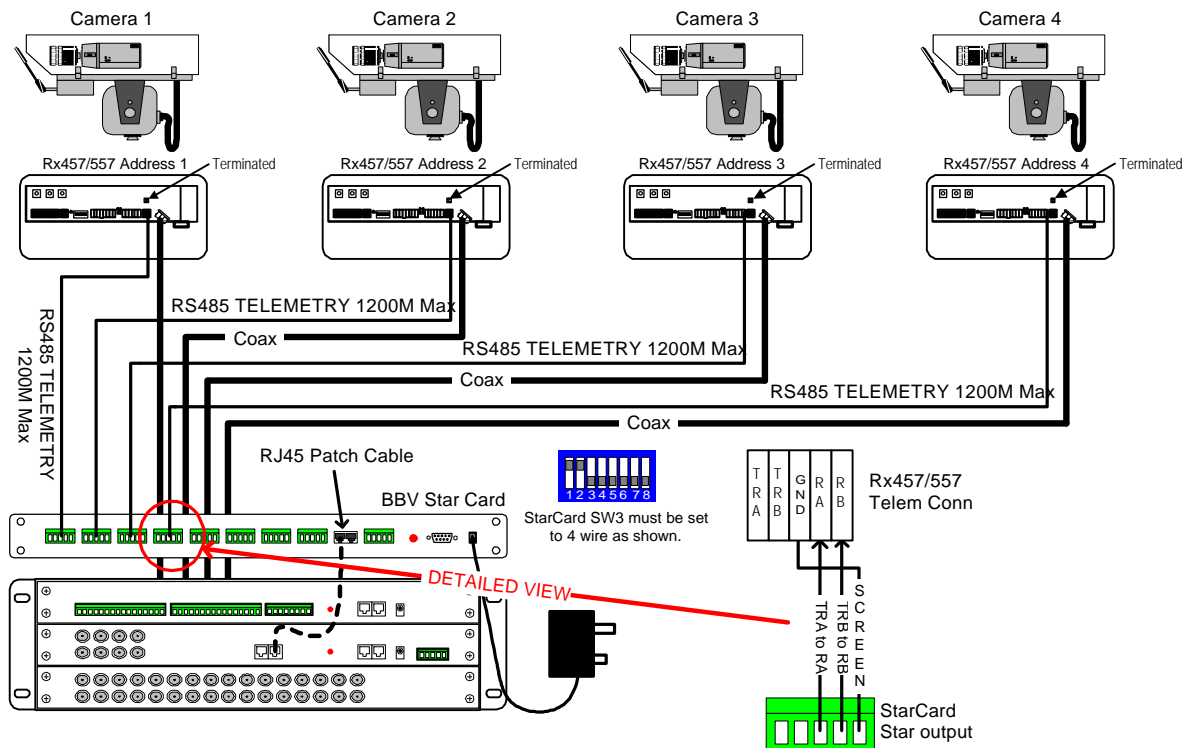


Fig 9. Star Wired Configuration using the optional BBV StarCard

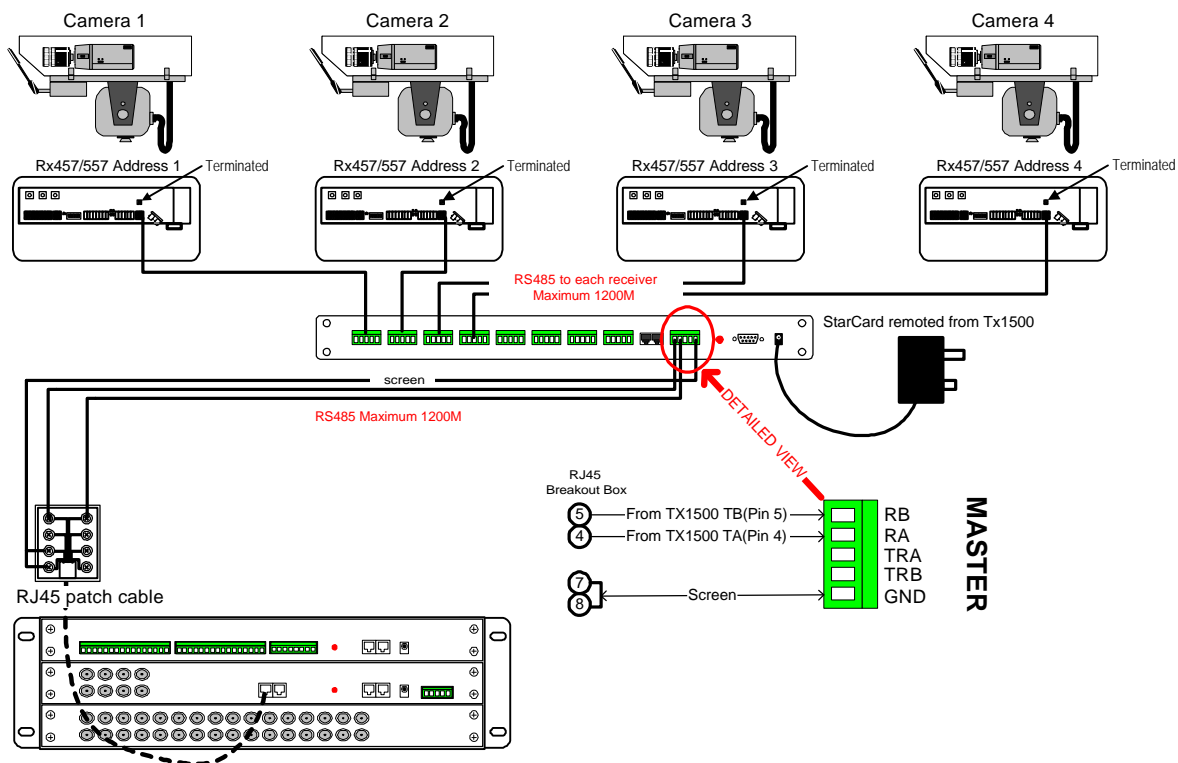


Fig 10. Use of StarCard mounted remotely, reducing cable runs

## VIDEO INPUT CARD

The Video Input Card is used to connect 16 camera inputs to the Tx1500. Systems larger than 16 cameras will use multiple cards. A board mounted DIL switch is used to set the card's camera numbers.

Each input has a corresponding looping output on the lower BNC connector. The camera inputs are passively terminated at 75Ω and auto de-terminate when a BNC plug is connected to the looping output. Up to 6 cards can be used to allow up to 96 camera inputs.

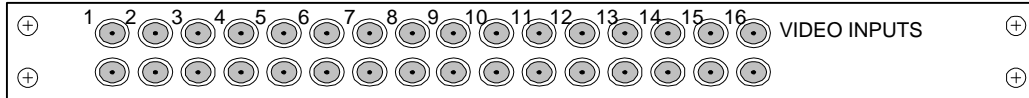
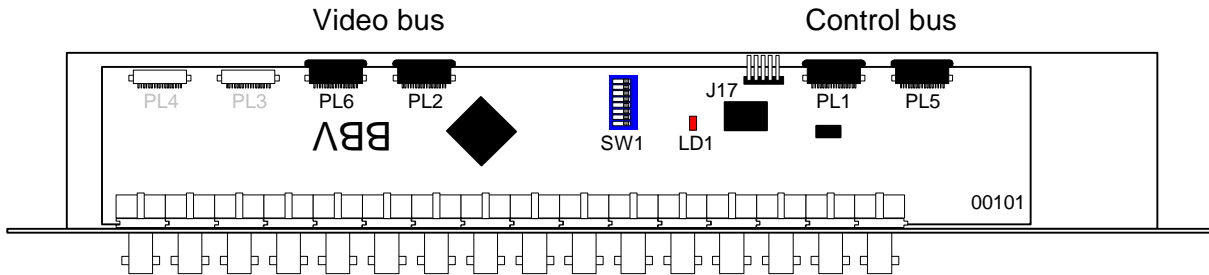


Fig 11. Video Input card Front Panel View



Top view of Tx1500 video input board PCB00101

Fig 12. Video Input card internal view

The switches for each card will be set at the factory however if the system is to be upgraded then please set the new card(s) switches as shown on the right.

Unpredictable results will occur if multiple cards have the switches set to the same address.

### SW1 Camera Range

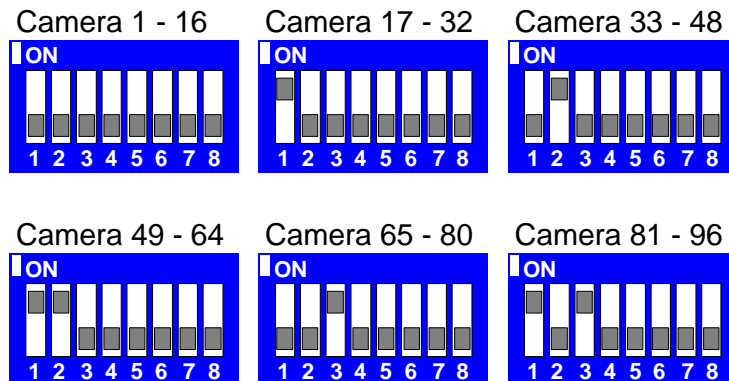


Fig 13. Video Input card SW1 address switch setting

# MONITOR OUTPUT CARD

This card provides the 8 monitor outputs, B-BUS, RS485 telemetry and a relay output. Internal switches are used during specific BBV tests that should not require on site adjustment.

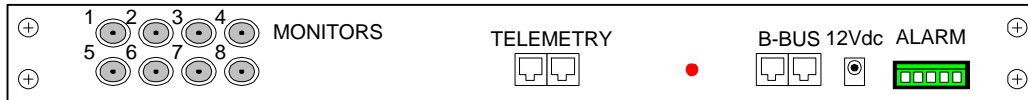


Fig 14. Monitor Output card Front Panel View

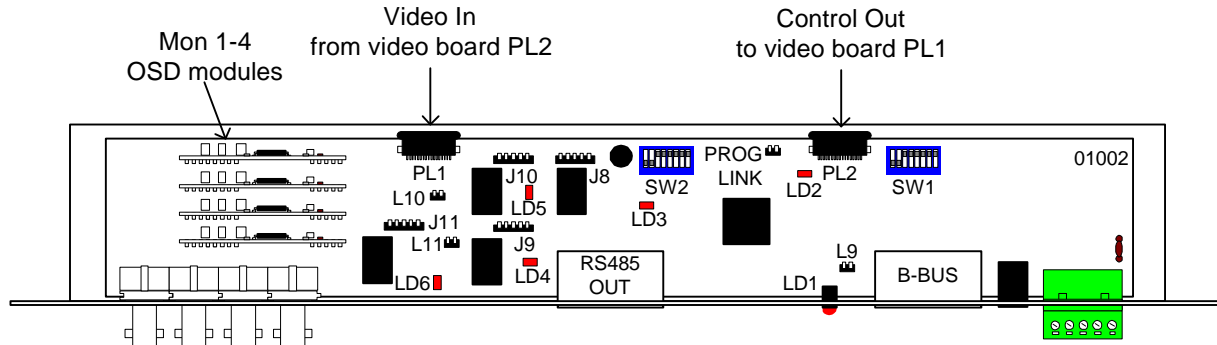


Fig 15. Monitor Output card internal view

## Diagnostic LEDs

LD1 – Front Panel indication of system and B-BUS operation. When the Tx1500 is properly configured with the correct number of keyboard and alarm cards connected the led appears to be on but pulsing very quickly. If communication with a keyboard or alarm card fail or if the Tx1500 is configured incorrectly then the led will flash at a noticeably slower rate i.e. 2 flashes per second.

## Internal LEDs,

LD2 – BBV debug use.

LD3,4,5,6 – ON whilst coaxial telemetry is transmitted to the camera which is being viewed on Mon 1,3,2,4

For normal operation the internal switches must be as shown below:

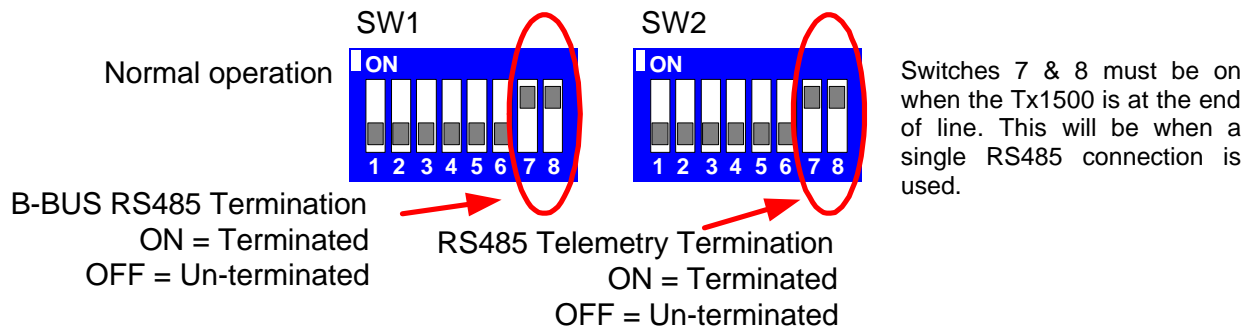


Fig 16. Monitor Output card SW1 and SW2 functions

Setting the switches as shown below will carry out a factory default. The procedure is to power off the Tx1500, set the switches and then power on the Tx1500. On screen instructions are displayed on monitor 1 output.

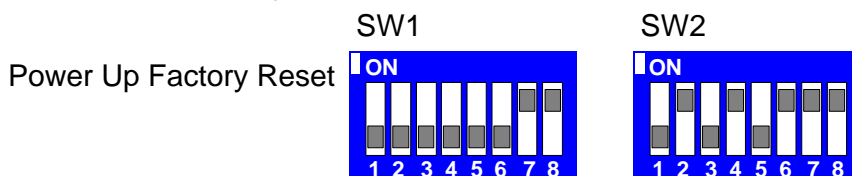
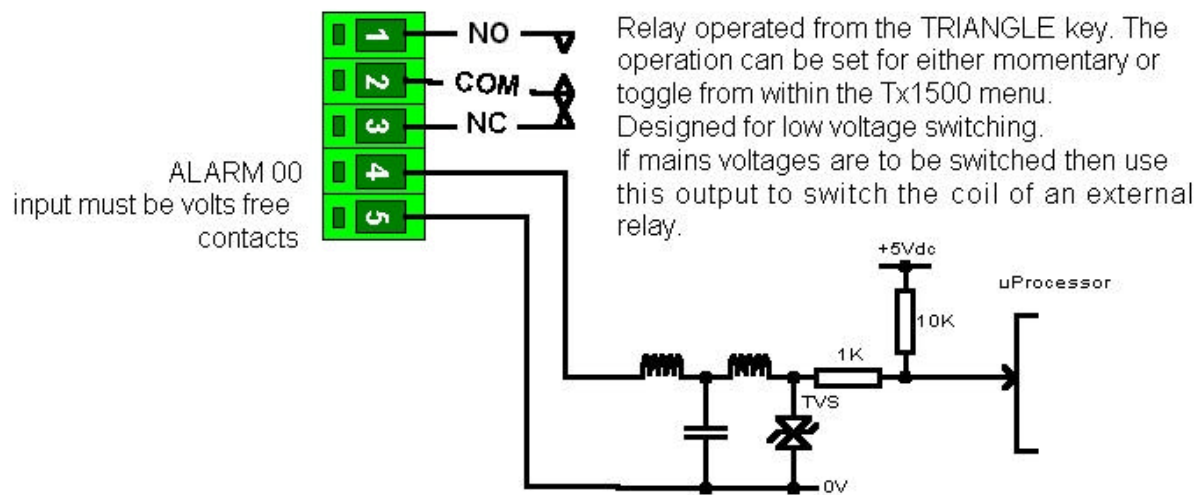


Fig 17. Monitor Output card SW1 and SW2 factory reset setting

The Power Up Factory Reset option will delete all Tx1500 programming and should be used with extreme care. If unsure please contact BBV technical support for guidance. +44(0)1323 444600.

Fig 18. Monitor output card ALARM00 input and TRIANGLE relay connections



## 16 ALARM INPUT CARD

Each alarm card provides up to 16 individual normally closed volts free alarm inputs. The card communicates via B-BUS with the monitor output card. Power comes via either the B-BUS interface when the alarm card is mounted in the Tx1500 rack or via an external 9-12Vac/dc supply when mounted remotely.

The power led is used as a status indication and shows the following:

Mainly ON, flashing OFF when the MONITOR card polls it approx 2-3 times every second. (NORMAL)

OFF permanently – ALARM card not powered or faulty.

ON permanently – Not polled by MONITOR card, b-bus cable faulty or ALARM card faulty.

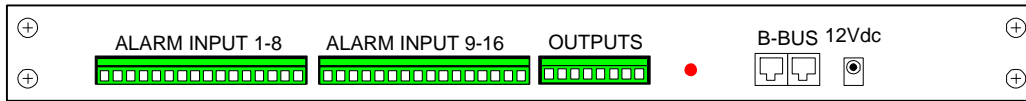


Fig 19. Alarm card front panel view

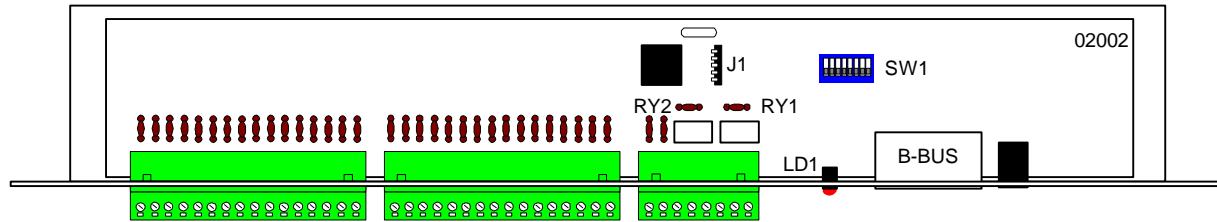


Fig 20. Alarm card internal view

SW1 is used to set the alarm card address as follows:

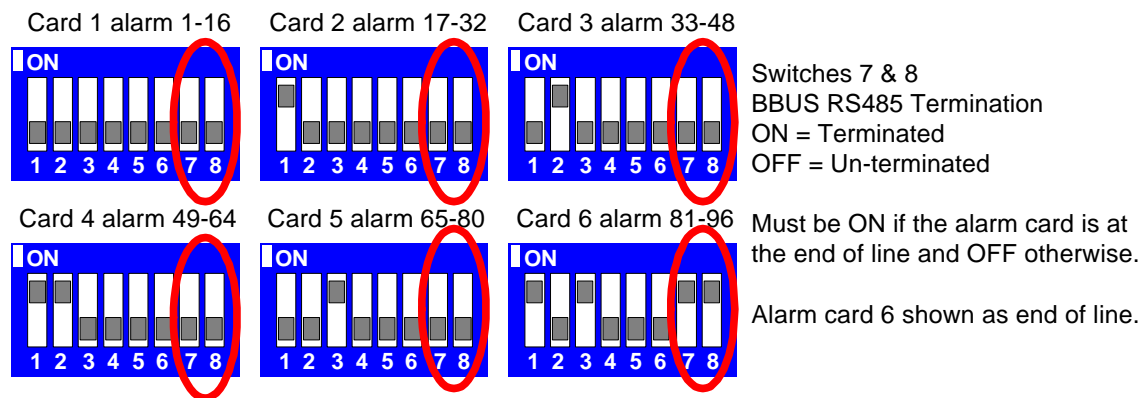


Fig 21. Alarm card SW1 address switch settings

The input stage of each alarm is as shown on this circuit fragment.

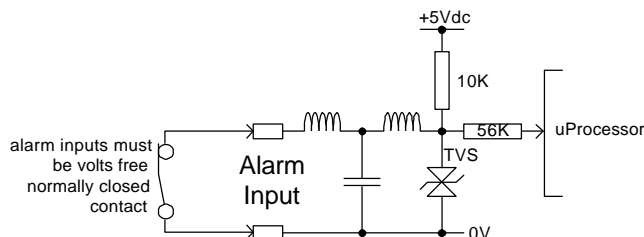


Fig 22. Alarm card alarm input circuitry

## 96 CAMERA SYSTEM SUBRACK CARD CONFIGURATION

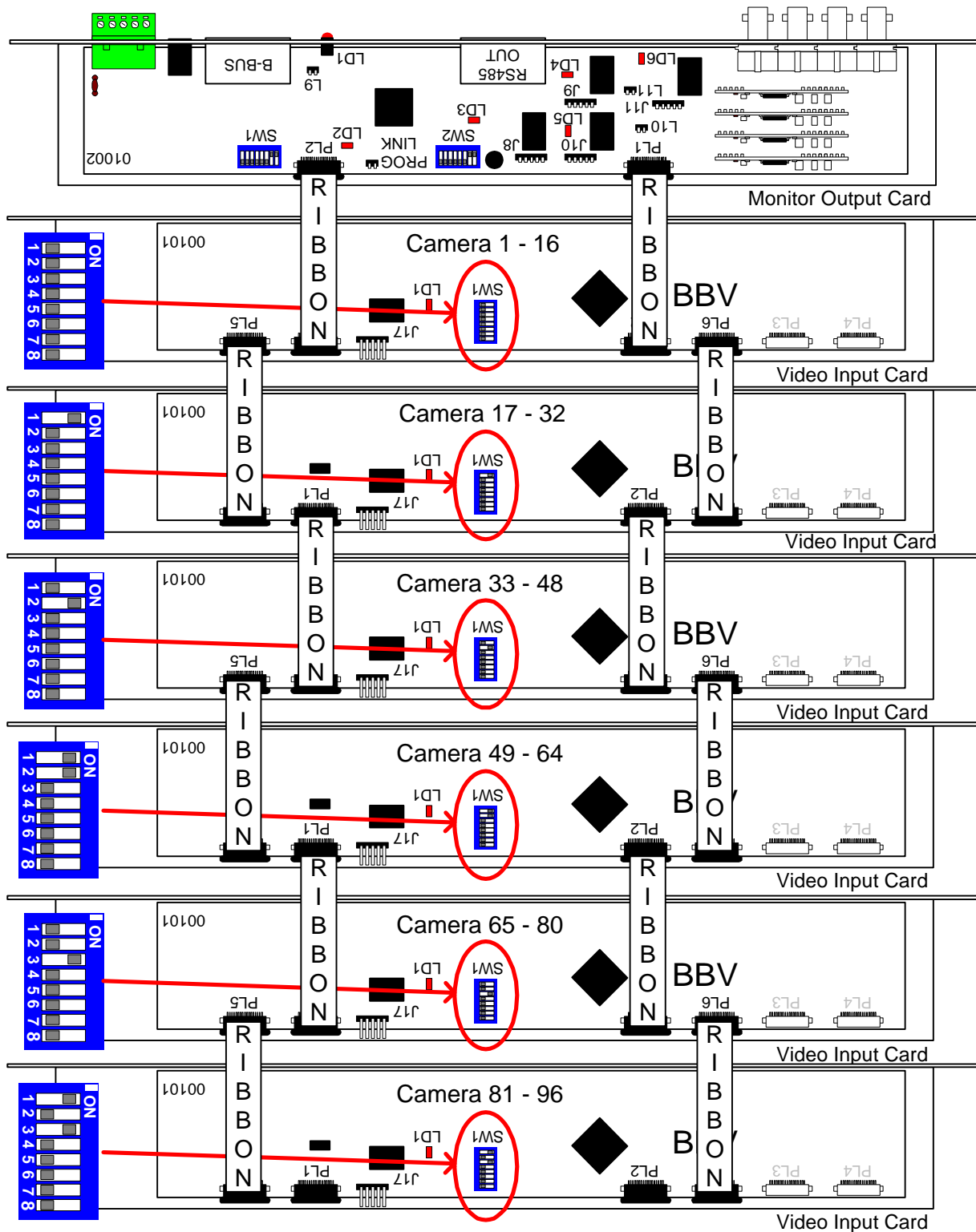


Fig 23. Wiring and switch settings for Video Input card and Monitor Output card

# CONFIGURATION USING THE TX1500 MENUS

The menu system for Tx1500 software version V1.04 is described on the following pages.

Out of the box the Tx1500 is configured to control BBV coaxial telemetry on all cameras and Keyboards 1 to 4 are limited to control monitors 1 to 4 respectively.

The Tx1500 menu system allows the unit to be configured to your customer's site requirements.

Keyboard 1 is used to access the Tx1500 menu by simply pressing and holding the PROGRAM key for 2-3 seconds. The following screen will be displayed on the MONITOR 1 output.

Press for 2 seconds

**PROGRAM**

The menu is displayed and the PROGRAM led is lit.

**PROGRAM**

```
Enter Pin Number

* * * * *

+ or - = Enter Key
Joystick to Navigate
Press clear to exit menu

Exit
```

Enter the six digit PIN using keys 0 – 9.

The default PIN is 999999

Use the joystick left and right if a digit is entered incorrectly.

The Tx1500 Main Menu is displayed if the PIN is correct otherwise the Tx1500 reverts to normal control.

TX1500 Main Menu

System Basics  
Access Tables  
Alarm Menus  
Sequences  
Camera Types  
Set Passwords  
System Parameters

Exit      press + to select

To navigate through the menu, use the joystick and either the +/- keys or numeric keys.

To exit the menu press the PROGRAM key again to turn the LED off.

**PROGRAM**

Each of the menu items will be described on the following pages

## SYSTEM BASICS

System Basics

Maximum Camera number 10  
Maximum Alarm number 0  
Number of Keyboards 2  
Maximum Monitor number 8

Return

This example screen shows the settings for a site with 10 cameras, 2 keyboard control and no site alarms.

### Maximum Camera number:

This value is used to limit a system and prevent displaying blank screens when attempting to display a non-existent camera.

### Maximum Alarm number:

This value should be 0 unless the optional TX1500/AL16 alarm cards are used. Each alarm card has 16 alarm inputs therefore if 4 cards are used the maximum alarm number must be set to 64. The following table shows the maximum alarm numbers that should be used.

alarm cards	Maximum Alarm number
0	0
1	16
2	32
3	48
4	64
5	80
6	96

### Number of Keyboards:

It is possible to have four control points for the Tx1500. Each control point can be either a Tx1500 keyboard, Touch Screen T-Command keyboard or control from a PC or other control system using a B-BUS PC interface.

The Number of Keyboard value must be set to the correct number of control points. The default value is 1. Any additional keyboards or B-BUS PC interfaces will not function if this value is not correct. If the value is too high sluggish control will result as the Tx1500 waits for a response from none-existent keyboards etc.

### Maximum Monitor Number:

This value is simply a reminder and is fixed at 8 monitors. You cannot select this line to change the value.

### Return

Displays the TX1500 Main Menu again.

## ACCESS TABLES

One of the advanced features of the Tx1500 system is the ability to prevent specific cameras from being displayed on individual monitors and prevent individual keyboards from moving cameras.

Allocating cameras to monitors and keyboards is programmed from the Camera Types screen.

The Access Table screen is used to program which monitor or monitors each keyboard can control. A setting of 'Y' is used if the keyboard is allowed to control a monitor and 'N' to prevent control.

```
Access Table
Keyboard to Monitors

          1 2 3 4 5 6 7 8
1 Tx 1500 v4 Y N N N N N N N
2 Tx 1500 v4 N Y N N N N N N
3 Not Fitted N N N N N N N N
4 Not Fitted N N N N N N N N

Return
```

This screen shows the settings for a site with two keyboards. Each keyboard has it's own monitor and is locked out of controlling the other keyboards monitor.

i.e.

Keyboard 1 can control monitor 1 ONLY

Keyboard 2 can control monitor 2 ONLY

Pressing the + or – keys will toggle the value of each monitor between Y and N.

On power up the Tx1500 system interrogates devices on the B-BUS and any keyboards or other control devices are displayed on this screen.

The possible methods of control are shown in the following table.

Displayed	Description
Tx 1500	Standard Tx1500 joystick keyboard
TCommand	Touch Screen keyboard
232 I/F	B-BUS PC Interface allowing control from PC and from remote sites etc.

## ALARM MENUS

Alarm handling of the Tx1500 is programmed in from the Alarm Menu screens.

Up to four actions can be carried out following each alarm activation. Eg four cameras could move to preset positions to triangulate onto an event.

On selection of Alarm Menus the following screen is displayed

```
You have 16 alarms
enabled and connected

Enter Alarm number 00
to Edit

Return
```

The Tx1500 will display the total number of alarms that can be programmed based on the number of alarm cards that are connected to the system.

This example shows a system with a single 16 input alarm card.

Enter the alarm number you wish to program using the 0-9 keys and 2 digits. Eg 01 for alarm 1. The following screen will then be displayed.

```
Alarm 1
      kbd cam mon pre time
Action  1  01  1  01  30s

No Action 1  01  1  00  30s

No Action 1  01  1  00  30s

No Action 1  01  1  00  30s

Return      Exit next prev
```

Each of the four actions allows a camera to be moved to a preset position and for this camera to be displayed on a monitor output. In addition, if the monitor was sequencing before the alarm occurred, after 'time' seconds the sequence is re-started.

If alarms are taken into the local alarm input of one of these receivers, Rx100/Rx400DC/Rx457/Rx557, pre must be set to 00 to allow the receiver to drive the camera to a preset.

See the receiver manual for more details of local alarms.

This simple example shows alarm 1 moving camera 1 to preset 1 and display on monitor 1.

next and prev allow setting the alarm actions for the next and previous alarm inputs.

## SEQUENCES

Each of the 8 monitor outputs of the Tx1500 can sequence between all or specific cameras. Each camera can be individually added or removed from each monitor sequence to create a system where say in a retail environment public store monitors are prevented from displaying sensitive areas of the store whilst monitors in the security office can sequence all cameras.

Individual cameras can be added or removed from sequences in banks of 8 as shown on the following screen:

### Sequence Setup Selection

```
Cameras 01 - 08
Cameras 09 - 16
Cameras 17 - 24
Cameras 25 - 32
Cameras 33 - 40
Cameras 41 - 48
Cameras 49 - 56
Cameras 57 - 64
Return
```

If a camera greater than the Maximum Camera Number is added to a sequence this camera will be ignored when the sequence is running.

Selecting Cameras 01 – 08 will display the following screen

```
monitor sequence setup
      cam 1 2 3 4 5 6 7 8
1  2 Second  Y Y Y Y Y Y Y Y
2  5 Second  Y Y Y Y Y Y Y Y
3 15 Second  Y Y Y Y Y Y Y Y
4 20 Second  Y Y Y Y Y Y Y Y
5 25 Second  Y Y Y Y Y Y Y Y
6 30 Second  Y Y Y Y Y Y Y Y
7 Full Rand  Y Y Y Y Y Y Y Y
8 Random     Y Y Y Y Y Y Y Y
Return      menu  Next8
```

Monitors 1 to 8 are shown with monitor 1 the top line and monitor 8 the bottom line.

The first item is the type of sequence or the dwell time if running a standard sequence. The screen on the left shows all the variants of sequences and dwell times.

### Sequence types.

2/5/15... Second – standard sequence starting at the lowest camera. Waiting for the dwell time before displaying the next camera.

Random – The cameras are sequenced as above from lowest to highest but the dwell time is random.

Full Rand – In Full Random the monitor will display a completely random camera for a random dwell. This is useful for public display monitors on shop floor to prevent shoplifters remembering the displayed sequence.

A camera will be in a specific monitor's sequence if a Y is displayed or be skipped if an N is displayed. Use the + or – keys to toggle between Y and N.

Next8 will allow display of the next bank of 8 cameras.

## CAMERA TYPES

These screens allow the type of telemetry and which monitor(s) and keyboard(s) are allowed to view and control each camera.

The cameras are again displayed in banks of 8 as shown on the following screen:

### Camera Setup Selection

```
Cameras 01 - 08
Cameras 09 - 16
Cameras 17 - 24
Cameras 25 - 32
Cameras 33 - 40
Cameras 41 - 48
Cameras 49 - 56
Cameras 57 - 64
Return
```

Start at Cameras 01 – 08 to display the setup screen

```
Camera 01-08  Kbd  Monitor
                1234 12345678
01 BBV coax   YYYY YYYYYYYY
02 BBV coax   YYYY YYYYYYYY
03 Static     YYYY YNYYYYYY
04 BBV coax   YYYY YYYYYYYY
05 BBV 485 TP YNNN NYNNNNNN
06 BBV coax   YYYY YYYYYYYY
07 Not Fitted YYYY YYYYYYYY
08 Not Fitted YYYY YYYYYYYY
Return      Menu  Next8
```

This example shows Camera 1,2,4 & 6 with coax telemetry and able to be viewed on all monitors and controlled from all keyboards.

Camera 3 is a static camera that can be viewed on all monitors apart from monitor 2.

Camera 5 is driving via RS485 and can only be viewed on monitor 2 and controlled by keyboard 1.

Cameras 7 & 8 are not fitted.

The choices for camera type are:

BBV coax        – Standard BBV up-the-coax telemetry  
BBV 485 TP     – BBV RS485 telemetry also used when driving a starcard/converter  
Static         – Telemetry is disabled  
Not Fitted     – This will be used in future version of the firmware.

BBV coax would be used to control the existing range of BBV up-the-coax receivers.  
Rx100 for dome control. Rx200/300/400P for AC heads, Rx400DC for high/variable speed 24Vdc heads.

BBV 485 TP is used to drive the new advanced range of addressable BBV receivers that are controlled using two wire RS485 or domes via RS485 and a BBV protocol converter. The RX457 is used when driving AC pan/tilt heads and the RX557 is used for high/variable speed 24Vdc heads. Both receivers offer additional features including an On Screen Display with an advanced menu system, 8 local alarm inputs, wide input supply, DIP switch addressable allowing either star or daisy chained wiring. Full details can be found on the BBV web site [www.bbvccv.com](http://www.bbvccv.com)

Kbd: If a keyboard is allowed to control the camera select Y or if the keyboard can only view but not control the camera select N.

Monitor: Select Y if the camera can be displayed on each monitor or N if not. This allows cameras to be hidden from specific monitors/operators.

## SET PASSWORD

The default menu password of 999999 can be changed using this screen.

```
TX1500 Version  1.04

Change Pin Number

New Pin Number  *
Confirm Number  *

Initialise System

Return  Exit
```

The Tx1500 software version is displayed on the top of the screen.

Select the New Pin Number area and type the new PIN. Move to the Confirm Number area and retype the PIN.

If the PIN is the same then the display shows the TX1500 Main Menu and the PIN number is then programmed.

Initialise System is used to cause all the Tx1500 programming to be deleted and default settings used.

**This function must be used with great care.**

# SYSTEM SETUP

Used to program additional settings as follows:

## System Setup

Menu Timeout	200 Seconds
Program Timeout	20 Seconds
Lockout Delay	10 Seconds
Display Line	9
Input Action	Disable Alm
Alarm Beep Time	5 Seconds
Alarm Stack	New Event
Relay Action	Latching
Return	

### Menu Timeout:

Number of seconds of inactivity before the menu is automatically exited.

### Program Timeout:

Number of seconds the keyboard will stay in programming mode after the PROGRAM key is pressed. This is designed to prevent preset positions from being overwritten accidentally.

### Lockout Delay:

Number of seconds that a PTZ control of a camera is locked out after the last movement command. Used to prevent two keyboards from 'fighting' for control of the same camera.

### Display Line:

This allows the Tx1500 status line to be moved up and down slightly on the screen to prevent the Tx1500 text from being overwritten by the text from say a VCR etc.

### Input Action:

Sets the action for the ALARM 00 input on the Tx1500 monitor card's 5 way connector between pins 4 and 5.

Disable Alm – When pin 4 & pin 5 are shorted all site alarms via the optional alarm cards will be disabled. This can be used from a relay output of an intruder system to disable alarms activations during the day.

Alarm 00 – This will be used in future version of the software to provide a single alarm input.

No Action – Nothing will occur when these pins are shorted or opened.

### Alarm Beep Time:

Number of seconds the keyboard will beep after a site alarm.

### Alarm Stack:

New Event – The Tx1500 will action each alarm as it is activated.

Key Press – This will be used in future version of the firmware to require an alarm acknowledge before the alarm is processed.

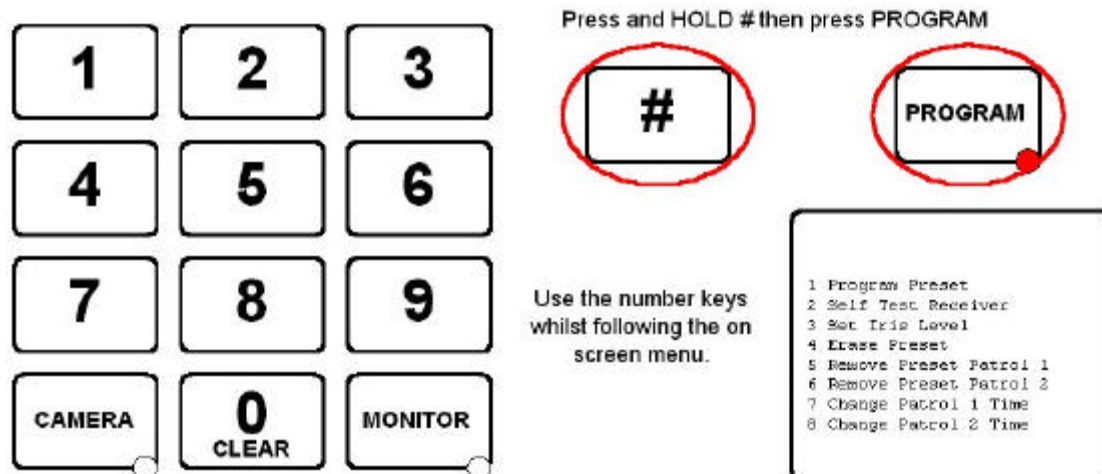
### Relay Action:

Latching – Pressing the keyboard's TRIANGLE key will toggle the state of the monitor output card relay.

Momentary – The relay will switch whilst the TRIANGLE key is pressed and switch back again when the key is released.

## UP-THE-COAX RECEIVER SPECIFIC PROGRAMMING

To program specific features of BBV's range of up-the-coax receivers press and hold the '#' key and tap the PROGRAM key. The PROGRAM key must be enabled in the keyboard using SW1 switch 8 ON which is the factory default setting.



### 1 Program Preset

Enter 01 – 16 to program this preset position.

This is a legacy function to program a preset position and the preferred method is described on page 25.

### 2 Self Test Receiver

This will start the remote self test function, i.e. left/right/up/down etc on BBV up-the-coax receivers only.

### 3 Set Iris Level

Used with Rx300 Rx400P and Rx400DC to set the iris override output if fitted.

### 4 Erase Preset

Used to erase a preset from an RX100, RX400P or RX400DC. Enter 01 – 16 to erase the preset position.

### 5 Remove Preset Patrol 1

Enter 01 – 16 to remove the preset from preset patrol 1 with RX100, RX400P and RX400DC receivers

### 6 Remove Preset Patrol 2

As above but removes the preset position from patrol 2

### 7 Change Patrol 1 Time

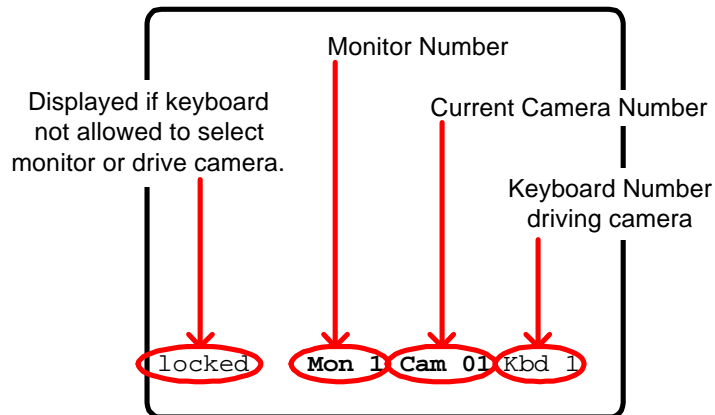
Used to set the dwell time for patrol 1. 01 = RANDOM, 02 = 12 seconds, 03 = 24 seconds etc up to 16 = 180 seconds when used with Rx100, Rx400P and Rx400DC receivers.

### 8 Change Patrol

As above but relates to preset patrol 2.

The menu will timeout and the PROGRAM key LED will turn OFF after several seconds to prevent accidental reprogramming of the receiver.

## TX1500 USER GUIDE



Monitor outputs 1,2,3 & 4 have an On Screen Display as shown on the left.

The Monitor number along with current Camera number is shown permanently.

Kbd is displayed whenever a keyboard is driving a camera.

'locked' is displayed when a keyboard attempts a dis-allowed operation.

Monitor outputs 5,6,7 & 8 are not equipped with On Screen Displays and are generally used as spot, park or public display monitors.

### SELECTING A CAMERA

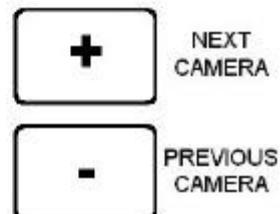


Use the number keys followed by the CAMERA key.

If the keyboard AND monitor are allowed to display the camera then the current monitor will now display this camera.

If not then the current monitor will display 'locked' and the keyboard will beep.

! Whilst the CAMERA key LED is ON the + and - keys can be used to easily switch to the next or previous camera.



### SELECTING A MONITOR



Use the number keys followed by the MONITOR key.

If the keyboard is not allowed to control this monitor then the current monitor will display 'locked' and the keyboard will beep.

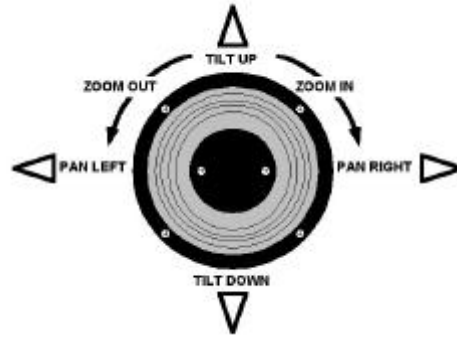
Otherwise the keyboard can now control the camera displayed on the new monitor

## MOVING A CAMERA

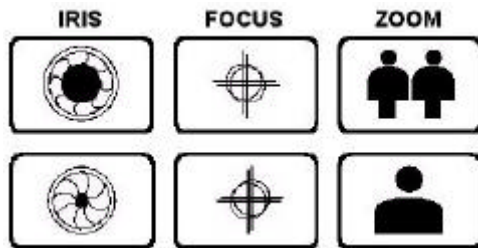
### JOYSTICK

The joystick is used to pan and tilt the camera and drive the lens zoom.

Moving the joystick left and right will pan the camera and moving the joystick up and down will tilt the camera. Rotating the joystick knob clockwise will zoom the lens IN and rotating the knob anti-clockwise will zoom the lens OUT. The joystick offers proportional speed control, i.e. the speed of the camera movement depends on how far the joystick is moved from the centre position.



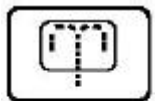
### LENS KEYS



These keys are used to zoom and focus the lens and alter the iris if that function has been provided.

Press a key for the desired function and release to stop.

### AUXILIARY OUTPUTS



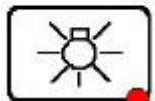
The WASH key is used to wash the camera housing's glass if the feature has been provided.



The WIPER key is used to toggle the camera housing's wiper ON/OFF



The function of the AUTOPAN key will vary depending upon the camera being controlled but mainly is used to make the camera either pan from end stop to end stop or to run a preset patrol. Moving the joystick left or right will turn autopan off.



The LIGHTS key is used to toggle any lights ON/OFF

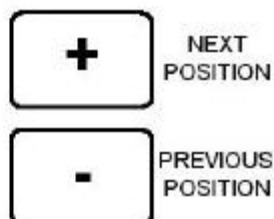
## GOTO PRESET POSITION



Use the number keys followed by the PRESET key.



! Whilst the PRESET key LED is ON the + and - keys can be used to easily switch to the next or previous preset position.



Preset positions are only available on moving cameras that are equipped for presets. Most will accept presets 1 – 16 although the Tx1500 supports preset positions up to 99. This should be checked with your installing company.

## PROGRAMMING A PRESET POSITION



Press the PROGRAM key to turn the PROGRAM key LED ON. The unit is now in preset programming mode.

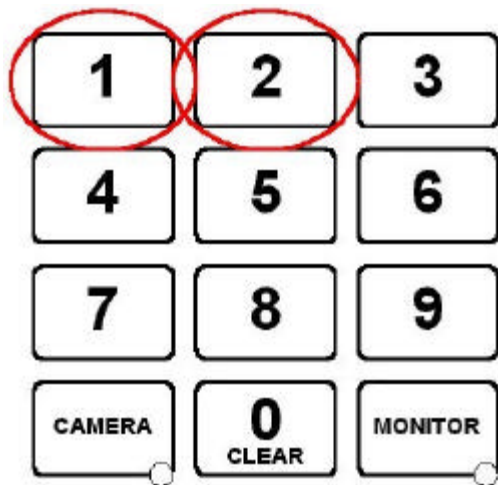


If the LED doesn't light then this keyboard has been prevented from programming presets by the installation company.



Use the number keys followed by the PRESET key to program the new preset position.

## STARTING A PRESET PATROL



Press either 1 or 2 followed by the PATROL key.

The PATROL key LED will be ON whilst the current camera is running a preset patrol.

To stop the camera from patrolling simply move the joystick. The PATROL key LED will now be OFF.

As with presets, patrols are only available on moving cameras that are equipped for presets. Certain dome cameras may offer enhanced patrol features that will be covered in the product addendum sheet for each specific dome type.

## STARTING A MONITOR CAMERA SEQUENCE



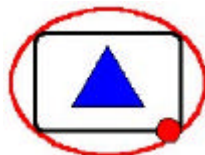
Pressing the SEQ key will start a camera switching sequence on the current monitor. The SEQ key LED indicates if the current monitor is running a sequence.

Each monitor can sequence individually and simultaneously.

The monitor sequence is programmed by the installation company using the system configuration menu.

To stop the sequence either press the SEQ key again to toggle the LED OFF or select another camera.

## TRIANGLE / RELAY KEY



The TRIANGLE key is used to drive the TX1500 change over relay. The relay can be used for a variety of purposes. Your installation company will inform you of the specific function for your site.

## ALARM KEY



If the system has been configured for KEY PRESS alarms by the installation company, following a site alarm the ALARM key LED will be ON, the alarm monitor will display 'alarm' and the alarm keyboard will beep.

The alarm is acknowledged by pressing the ALARM key. The alarm monitor/s will display the camera/s programmed for this alarm.

## TX1500 System Keyboard

Software: V4

The keyboard requires 12Vac/dc < 100mA supply.

An internal 8 way DIP switch is used to set the keyboard address, RS422 termination and PROGRAM key enable/disable.

Address	SW1 Addr 1	SW2 Addr 2	SW3 Addr 4	SW4 Addr 8	SW5 Addr 16	SW6 Rx Term	SW7 Tx Term	SW8 PROGRAM ENABLE
0 – KBD1	OFF	OFF	OFF	OFF	OFF			
1 – KBD2	ON	OFF	OFF	OFF	OFF			
2 – KBD3	OFF	ON	OFF	OFF	OFF			
3 – KBD4	ON	ON	OFF	OFF	OFF			

Function	SW1 Addr 1	SW2 Addr 2	SW3 Addr 4	SW4 Addr 8	SW5 Addr 16	SW6 Rx Term	SW7 Tx Term	SW8 PROGRAM ENABLE
LAST UNIT						ON	ON	
MID UNIT						OFF	OFF	
ENABLE PROGRAM								ON
DISABLE PROGRAM								OFF

### **Joystick Calibration Procedure**

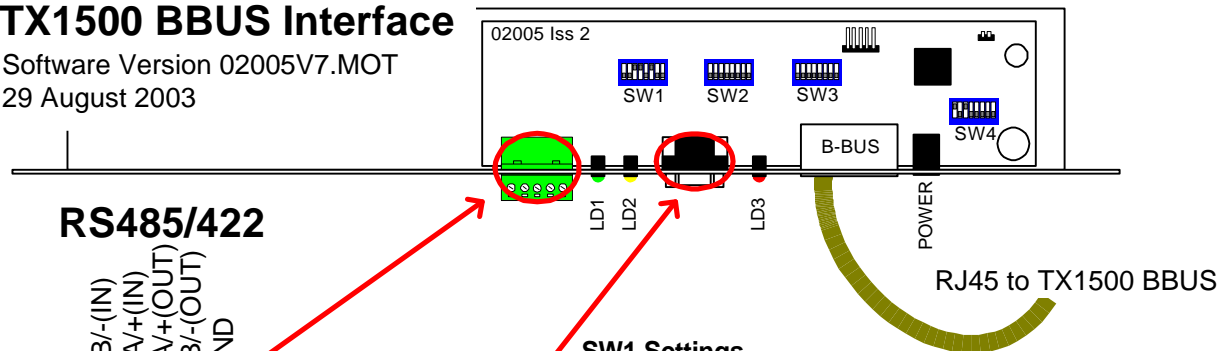
If the joystick is changed then this simple calibration procedure must be followed otherwise unpredictable pan/tilt/zoom results may occur.

1. Power down the keyboard for 30 seconds to allow the internal capacitors to discharge fully.
2. Press and hold both the **1** and **TRIANGLE** keys and power up the keyboard.
3. The TRIANGLE led will then flash indicating that the keyboard is in calibration mode.
4. Press **5** to set the joystick zero position.
5. Move the joystick fully UP and hold in this position and press **2**
6. Move the joystick fully DOWN and hold in this position and press **8**
7. Move the joystick fully LEFT and hold in this position and press **4**
8. Move the joystick fully RIGHT and hold in this position and press **6**
9. Rotate the joystick knob fully clockwise (ZOOM IN) and hold in this position and press **ZOOM IN**
10. Rotate the joystick knob fully anti-clockwise (ZOOM OUT) and hold in this position and press **ZOOM OUT**
11. Calibration is then complete. Power down the keyboard for 30 seconds before powering up. Check that the TRIANGLE led is not flashing after power up if it is then power down again for 30 seconds.

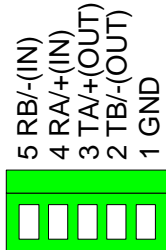
# TX1500 BBUS Interface

Software Version 02005V7.MOT

29 August 2003

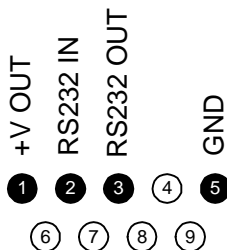


## RS485/422



## RS232

Chassis Mount DB9 Male



## LED guide

### GREEN LD1

Flashes when the interface sends an LED status to the RS232 port.

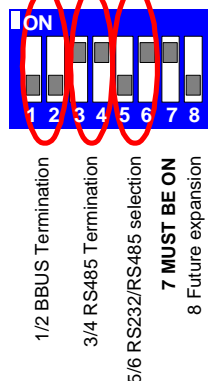
### YELLOW LD2

Flashes when interface receives a command from the RS232 port.

### RED LD3

BBUS comms status.  
OFF = Unit de-powered  
ON = Unit Powered but not communicating with the Tx1500.  
Pulsing Very Fast = Communicating correctly.

## SW1 Settings



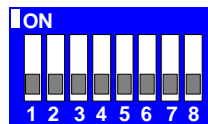
1/2 = BBUS termination  
Must be ON only when the interface is at the end of line.  
Default = OFF

3/4 = RS485 termination  
Must be ON only when the interface is at the end of line. Default = ON.

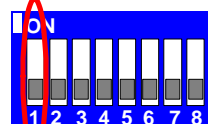
5/6 = RS232 or RS485 selection.  
SW1/5 SW1/6 Input  
OFF OFF None  
ON OFF RS485  
OFF ON RS232 (Default)  
ON ON DO NOT USE

7 = MUST BE ON

## SW2 - all OFF

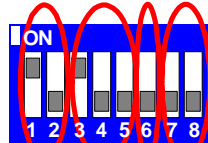


## SW3 - Mode



SW3/1 Select mode  
OFF BBUS Mode - RS232 control  
ON Remote keyboard mode  
Running Tx1500 keyboard over a RF link, fibre or other network.

## SW4 Settings



1/2 = BBUS Address  
SW4/1 SW4/2 Addr Keyboard No  
OFF OFF 0 1  
ON OFF 1 2 (Default)  
OFF ON 2 3  
ON ON 3 4

3/4/5 = Default Monitor Selection  
SW4/3 SW4/4 SW4/5 Monitor  
OFF OFF OFF 1  
ON OFF OFF 2 (Default)  
OFF ON OFF 3  
ON ON OFF 4  
OFF OFF ON 5  
ON OFF ON 6  
OFF ON ON 7  
ON ON ON 8

6 = Control Protocol Selection  
SW4/5 Protocol  
OFF TX1000 (Default)  
ON TX1500

7/8 Remote Tx1500 keyboard modes  
SW4/7 SW4/8 Mode  
OFF OFF Normal mode (SW3/1 OFF)  
ON ON Matrix End (SW3/1 ON)  
OFF ON Keyboard End (SW3/1 ON)

## BBUS I/F FOR REMOTE TX1500 KEYBOARD

The BBUS Interface must be fitted with 02005V7 software or later.

